

QUALITY MANAGEMENT

1. Purpose. This engineer regulation establishes philosophy and policy for quality management of all programs and projects executed by the U.S. Army Corps of Engineers (USACE).
2. Applicability. This regulation applies to all USACE activities. The philosophies and requirements of the USACE quality system embodied in this regulation are applicable to all functional areas. This takes precedence over all other USACE regulations, circulars, directives, letters, memoranda, and operating procedures with respect to quality management. All operational guidance must conform to the tenets of this regulation.
3. Distribution Statement. Approved for public release, distribution is unlimited.
4. References.
 - a. AR 5-1, Army Management Philosophy
 - b. AR 702-11, Army Quality Program
 - c. ER 5-1-11, Program and Project Management.
 - d. ISO 8402, Quality Assurance Management Vocabulary
5. General. This regulation empowers our teams with the authority and responsibility for delivering quality products and services to clients, in accordance with the Project Management Business Process (PMBP). This regulation considers all work to be projects, and all employees to be team members. This regulation describes the USACE quality philosophy, and applies to all the work we do. It authorizes deviations from other Engineering Regulations when their requirements impede the ability to comply with this regulation.
 - a. The U.S. Army Corps of Engineers defines quality products and services as those that *meet or exceed clients' stated and implied expectations*. This transcends the historical definition of quality based solely on technical product quality. To achieve client satisfaction, *we always strive for service quality*. There are three fundamental principles central to our approach to quality:
 - (1) *We ensure the right people with the right skills and tools work on the right job.* Quality is everyone's job. Each person contributes to project success by meeting the quality

requirements of his or her job. Each person is responsible for his or her contribution to overall project success and for the quality of his or her work. All employees affect our ability to succeed, even if they have no direct contact with the client.

(2) *We measure quality with our client's ruler.* We work with our clients to determine the quality they expect, and to deliver products and services in line with those expectations. We document quality objectives, metrics, and performance required to satisfy the client.

(3) *We employ a balanced approach to quality.* We balance the needs and expectations of clients and stakeholders, considering available resources and life-cycle requirements. As stewards of the public trust, there are certain minimum professional standards that we will not compromise. This baseline level includes legal, environmental, and life safety requirements. Technical requirements are negotiated with the client based on the project's complexity, the time and budget available, and the degree of risk the client and the USACE are willing to assume. Work proceeds when USACE and the client reach consensus.

b. The U.S. Army Corps of Engineers quality management philosophy is to do the right things, the right way, for the right reasons, and to constantly strive for improvement. Quality is managed through the "Plan-Do-Check-Act" cycle. This cycle is used at both the project level and the process level.

(1) *Plan: We plan for and build quality into our work at each step in the process.* We use a systematic planning process to identify the client's quality goals; develop an effective plan and processes to achieve those goals, and measure our attainment of the quality objectives. *We help our clients to express quality expectations in objective, quantitative terms.* We communicate with our clients to ensure mutual understanding of standards and processes. It is essential that the project team, including the client, understand the costs and benefits of selected quality standards and the processes to be used to achieve our mutual objectives. *We identify appropriate standards and determine how to achieve them. We consider the risk factors and complexity of each project, and adapt processes to provide the requisite level of quality.* We consult, advise, and reach consensus with the client before we do work.

(2) *Do:* We do work according to approved plans and standard operating procedures. Our procedures are developed and documented with sufficient detail to ensure that actions are performed correctly and completely each time. Project execution is a dynamic process. It requires the team to communicate and adapt to changing conditions and modify project plans to ensure project objectives are met.

(3) *Check:* We perform sufficient independent technical review, management oversight, and verification to ensure that we meet the quality objectives documented in the Project Management Plan. Team members periodically check performance against the plan and verify sufficiency of the plan and actual performance to meet or exceed agreed-on

objectives. Findings are shared with the project teams and district leaders to facilitate continuous improvement.

(4) Act: We take specific corrective actions to fix the systemic cause of any non-conformance, deficiency, or other unwanted effect. *We improve quality through systematic analysis and refinement of work processes.* The process of continuous quality improvement leads to the refinement of the overall quality system. Quality improvements include appropriate revisions to quality management plans, alteration of procedures, or adjustments to resource allocations.

c. The organization's processes and resources are aligned to support quality objectives. Senior leaders build and maintain an environment that encourages excellence, continuous improvement and growth. The team focuses on the client, with heavy reliance on partnering and relationship development to achieve better performance. *We involve the client throughout the process.*

d. Each level of the organization has a quality system that is focused on continuous quality improvements. In development of the organization's quality process, existing quality system guidance may be useful. The Army Performance Improvement Criteria (APIC) and the International Organization for Standardization (ISO) systems are described in Appendix C.

6. Definitions. See Appendix A.

7. Organizational Roles and Responsibilities. HQUSACE, MSCs, centers, laboratories, and districts all have direct responsibility for quality and quality improvement. All levels of USACE work together to ensure and enhance the quality of our goods and services. The quality management responsibilities of HQUSACE, MSCs, centers, laboratories and districts are as follows:

a. *HQUSACE* communicates philosophy and strategic vision through policy that enables MSCs and districts to achieve mission success. Policies are flexible to allow districts to tailor their services to satisfy the client's needs on a project by project basis. HQUSACE communicates policy and guidance, verifies the effectiveness of regulations, and revises policy documents. HQUSACE facilitates integration of quality systems between MSCs. HQUSACE also evaluates the quality performance of USACE centers and laboratories and facilitates lessons learned. Clients participate in this process. Through effective partnerships and benchmarking with other agencies and the private sector, HQUSACE stays abreast of quality system developments and disseminates relevant information to the MSCs. In addition, HQUSACE actively interacts with national clients, other agencies and private industry regarding quality standards.

b. *MSCs* evaluate and align division-wide resources to assure that districts meet their clients' expectations in the most effective and efficient manner possible. MSCs perform quality assurance of their subordinate districts' quality processes through annual audits using an integrated approach, consistent with the PMBP. The MSC identifies deficiencies in the

quality system and monitors corrective action. In addition, MSCs facilitate sharing of process improvements and best business practices among districts and promote consistency across the business center. MSCs provide feedback to HQUSACE for necessary improvements and modifications to quality policy and guidance documents.

c. *Centers and laboratories* are responsible for quality control of their in-house products and services and quality assurance of their contracted projects. Center and laboratory leadership provides adequate resources and assigns sufficient authority and responsibility to personnel to plan, execute, assess, and improve the quality of their products. Their quality processes are evaluated by HQUSACE on an annual basis, with a report of findings provided to the center or laboratory commander. Center and laboratory leadership takes an active role in assessing quality performance of their respective project teams. Clients participate and provide input for this process. Centers and laboratories gather, process, and distribute lessons learned to their team members to improve products and service quality.

d. *Districts* define their quality systems, including procedures for quality control of their in-house products and services and quality assurance of their contracted projects.

(1) The commander and corporate board create the conditions necessary for success through behavior consistent with the quality management operating principles (summarized in Appendix B). The senior leaders evaluate quality performance and facilitate improvements through application of these principles. They validate audit findings, communicate them to team members, and direct implementation of corrective actions. They ensure that project delivery teams (PDTs) include all personnel accountable for any facet of the project, and that they are formed with the client's quality expectations in mind. District leaders provide adequate resources and assign sufficient authority and responsibility to project managers (PMs) and PDT members to plan, execute, assess, and improve the quality of their products. District leaders provide adequate resources and assign sufficient authority and responsibility to supervisors to establish and maintain the quality framework for the organization. Senior leadership ensures that the district quality management processes are developed, maintained, and followed.

(2) Supervisors' duties include staffing, personnel management, labor-management relations, technical supervision, training, and mentoring necessary to maintain a quality workforce. They coach and mentor project delivery team members and facilitate process improvements through the life cycle of projects. Supervisors maintain a high level of professional expertise, and play an active role in facilitating access to subject matter experts. Supervisors at all levels of the organization are responsible for the competency of their team members. In addition to their role as resource managers, supervisors develop quality control and quality assurance processes to support the quality objectives of the district.

(3) Districts document the quality policies, procedures, and responsibilities in a Quality Management Plan (QMP). The QMP aligns the policies and operational procedures of the entire organization to meet the quality requirements of this regulation. The QMP details the structure and framework of procedures and activities necessary to satisfy the mission,

establish roles and responsibilities, and assign accountability for quality. All individuals should read the QMP and understand their roles in the quality framework. All team members follow the requirements of the QMP.

(4) The PDT, led by the PM, is responsible for delivering a quality project. The PM and the PDT work with the client early in the project scoping process to determine what the client needs, and refine those requirements in light of safety, fiscal, schedule, and other constraints. Examples of client-driven project quality may include functional, operational or maintainability enhancements, aesthetics, resolution of environmental problems, completion ahead of schedule or timely feedback on high visibility issues. The PM's relationship with the client is pivotal to providing quality service. His/her active role as consultant is essential to ensure that the client's quality objectives are clearly articulated and that the client understands the essential professional standards, laws, and codes we must incorporate into each project.

(5) A project may have multiple clients and stakeholders, who may have conflicting needs and expectations. The PM must balance their input and help the PDT integrate the diverse viewpoints into the project scope. The PM must ensure the clients, stakeholders, and PDT understand that they may have to make choices to balance desired objectives within project constraints.

(6) The PM in concert with the PDT is responsible to document client expectations and consensus quality objectives in an individual Project Management Plan (PMP) that documents project-specific quality assurance and quality control procedures appropriate to the size, complexity, and nature of each product. PMs employ the expertise of their project delivery teams to determine the procedures necessary to achieve the target level of quality. *The PM and PDT consider the cost/benefit of all quality improvements.* The PM ensures the client endorses all quality objectives included in the PMP and understands the client's role in project success. The PM and PDT evaluate products through the life cycle of the product to identify lessons learned. Lessons learned are shared with other PMs and PDTs.

FOR THE COMMANDER:

3 Appendices
App A
App B
App C

//NOT SIGNED//
RUSSELL L. FURHMAN
Major General, USA
Chief of Staff

APPENDIX A

DEFINITIONS

Client: any individual or organization for whom items or services are furnished or work performed to meet negotiated scope and specifications.

Corrective Action: action taken to eliminate the causes of an existing nonconformity, defect, or other undesirable situation in order to prevent recurrence.

Quality: the totality of features and characteristics of a product or service that bear on its ability to meet the stated or implied needs and expectations of the user.

Quality Assurance: an integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by the client.

Quality Control: the overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the client; operational techniques and activities that are used to fulfill requirements for quality.

Quality Plan: a formal document describing in comprehensive detail the necessary QA, QC, and other technical activities that must be implemented to ensure that the results of the work performed satisfy the stated performance criteria.

Quality System: a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC.

APPENDIX B

QUALITY MANAGEMENT OPERATING PRINCIPLES

- ✓ Measure quality with our client's ruler.
- ✓ Help our clients express quality expectations in objective, quantitative terms.
- ✓ Meet or exceed client's stated and implied expectations.
- ✓ Identify appropriate standards and determine how to satisfy them.
- ✓ Employ a flexible approach to quality.
- ✓ Involve client throughout process in decisions that affect quality.
- ✓ Consider cost/benefit of all quality improvements.
- ✓ Plan for and manage quality into our work at each step of the process Improve quality through. systematic analysis and refinement of work processes.
- ✓ Consider risk factors and complexity of each project, and adapt processes to provide the requisite level of quality.
- ✓ Consider service quality in everything that we do.
- ✓ Ensure the right people with the right skills and tools work on the right job.

APPENDIX C

APIC and ISO Quality Systems

The Army Performance Improvement Criteria (APIC) and the International Organization for Standardization (ISO) 9000 series are methodologies that can be used to help define quality systems in private and public organizations, including USACE. ISO and APIC are highly complementary, and may be used to best advantage in combination, drawing on the strengths of each. More specifics on these two systems can be found on the following websites:

www.hqda.army.mil/leadingchange/APIC/APIC2000/index.htm

www.iso.ch/9000e/9k14ke.htm

APIC is based on the internationally recognized Malcolm Baldrige Award Criteria. It covers the full breadth of the organization and is a tool for strategic planning, organizational assessment, and training. APIC raises the organization's performance expectations and standards, and establishes common performance criteria to facilitate communication and sharing of best business practices. It guides Army leaders to examine the organization and determine how well it is meeting its goals in seven areas: Leadership, Strategic Planning, Customer Focus, Information and Analysis, Human Resource Focus, Process Management, and Business Results.

The ISO 9000 series criteria are designed to help an organization clarify and continually improve its business processes. The focus of ISO is mainly internal, although the ISO 9000:2000 draft standard is much broader in scope and more closely parallels all seven APIC categories. At the heart of ISO is the concept that an organization must "Say what we do" and "Do what we say". A strength of ISO is the external audit and certification process, which forces an organization to show that it is actually following its own prescribed procedures, and is seeking continual improvement. The desire to maintain ISO certification helps provide the motivation and discipline needed to persevere with the quality improvement system.

APIC and ISO can be usefully applied at all USACE echelons. Tremendous synergy can be obtained by combining the two systems, gaining both the breadth and depth of APIC and the discipline of ISO. USACE organizations that choose to pursue ISO certification are encouraged to define their scope as the project management business process (PMBP), rather than taking a functional approach, and to pursue it with the intention of eventually adopting the full APIC criteria. A matrix showing the interrelationship of the ISO 9000:2000 criteria and the seven APIC categories can be viewed at <http://www.hq.usace.army.mil/qm/Cable.pdf>

Both ISO and APIC can be effective roadmaps to assist organizations that are committed to improving quality. It is also possible to develop a highly effective quality system without using either of these tools. Neither methodology will succeed without full understanding, continuous support and long-term commitment of senior leadership.